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VIRGIN ISLANDS AGRICULTURAL EXPERIMENT STATION
ST. CROIX, VIRGIN ISLANDS, U. S. A.
Under the supervision of the
UNITED STATES DEPARTMENT OF AGRICULTURE

REPORT OF THE VIRGIN ISLANDS AGRICULTURAL EXPERIMENT STATION

1927

Issued May, 1928

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VIRGIN ISLANDS AGRICULTURAL EXPERIMENT STATION, ST. CROIX

[Under the supervision of the Office of Experiment Stations, United States Department of Agriculture]

E. W. ALLEN, *Chief, Office of Experiment Stations*
WALTER H. EVANS, *Chief, Division of Insular Stations, Office of Experiment Stations*

STATION STAFF

JOHN B. THOMPSON, *Director*
W. M. PERRY, *Horticulturist* [1]
M. S. BAKER, *Agronomist*
A. BISSERUP, *Executive Assistant*

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[1] Temporarily engaged as agriculturist on the islands of St. Thomas and St. John.

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Washington, D. C. May, 1928

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REPORT OF THE DIRECTOR

The rainfall in St. Croix during the year ended June 30, 1927, totaled 48.05 inches, which was a little above the average for the past 50 years. Precipitation from March to May, 1927, inclusive, was above normal, and the good effects of the increased moisture supply should be shown in the crop of 1928. The production of sugar amounted approximately to 7,000 short tons as compared with 5,000 short tons for the preceding year. With the steady migration of laborers to New York, whither they are attracted by the high wages paid, the labor shortage on the sugar-cane plantations is becoming more acute.

Interest in crop diversification is increasing. During the year several farmers grew Bermuda onions on a small scale. The entire planting yielded approximately 4,000 crates of onions. The production of Bermuda onions, eggplants, peppers, and tomatoes in the Virgin Islands for shipment to the New York markets during the winter and spring months is one of the promising possibilities of the near future. Many of the farmers are planning to devote limited areas of land to one and probably to all of these crops. Three and one-quarter acres of land were planted with onions, peppers, eggplants, and tomatoes on the Little Princess estate for trial shipment to New York. Good crops were produced, notwithstanding the fact that conditions were not exceptionally favorable to growth. The rainfall was less copious than on most of the cultivated areas elsewhere in St. Croix, and the quantity of water in reserve was not ample for the seed beds during the early growing period of the crops. A charge of $12 per acre was paid for the use of the land, and $125, or $38.15 per acre, for cane stubble, which was removed at additional

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expense. Tomato worms (*Protoparce sexta* and *P. rustica*) in great numbers considerably damaged the peppers and necessitated hand picking, which further increased the cost of production. The net returns from the planting, after deducting the cost of renting and preparing the ground, seed, planting, cultivating, harvesting and shipping the crop, and the commission, was approximately $150 per acre. The experiment was the first of its kind to be undertaken by the growers and served to demonstrate the practicability of producing certain crops locally for profitable marketing in New York.

The station herd was reduced from 60 to 42 head because of threatened dry weather and a resultant shortage of feed for the animals. Two registered Guernsey heifers calved, and milk and butterfat records were kept of six cows. Trap-nest records of hens were carried through the third year in a study of egg production in the native fowl, and comparisons were made of the weights and numbers of eggs of both native and introduced fowls.

The work of the horticultural division showed no essential changes over that of last year and was under the immediate supervision of the director. Papaya investigations were continued, promising exotic plants were introduced for trial through the cooperation of the Office of Foreign Plant Introduction and the Federal Horticultural Board of the United States Department of Agriculture, and other agencies, and limited quantities of seeds and plants of economic value were distributed to interested local growers.

Numerous varieties of sugar cane were grown by the agronomy division and data were recorded on the sucrose content of 37 varieties. Seedlings SC 22/21 and SC 22/31 continue to be regarded as highly promising. Cultural experiments were conducted to learn the comparative effect on yield of cane of different methods of planting and of using an artificial manure produced by the use of a proprietary compound. Various tests were continued with cotton.

Agricultural extension work was carried on in St. Thomas and St. John under the supervision of the agriculturist with headquarters in St. Thomas. Vegetables were grown for marketing in New York, garden-vegetable demonstrations were held at all the schools, 68 talks on agricultural topics were given to interested groups, 59 articles dealing with timely subjects were prepared for local publication, and 2,337 packets of seed were distributed to 431 growers.

STATION IMPROVEMENTS

For the first time in several years the station buildings are in fair condition. Extensive repairs of a minor nature were made to all the buildings, and a new roof was put on each of four buildings which had long been in bad condition. A slat house 36 by 40 feet was built adjoining the plant-propagation house to provide facilities for handling the ever-increasing volume of propagation work. The total area provided for plant propagation by the original and new structures is about 3,000 square feet.

ANIMAL HUSBANDRY

CATTLE

Threatened dry weather during December, 1926, and January, 1927, and the fear of a consequent shortage of feed for the station animals led to a reduction in the size of the herd from 60 to 42 head.

The station herd now consists of 12 work steers, 9 native cows, 2 registered Guernsey cows, 1 registered Guernsey bull, 1 registered Milking Shorthorn bull, 1 purebred Guernsey heifer calf, 1 purebred Guernsey bull calf, 12 grade Shorthorn calves, and 4 native-bred calves. The registered Milking Shorthorn bull, Government Clay Chief, 1257318, has been in service for more than two years and remains in thrifty condition although he has been kept wholly on native guinea-grass pasturage. Among his progeny are several promising young bulls and two or three fine-appearing heifers, but their value as work animals and for milk production remains to be determined. The two registered Guernsey heifers calved during the year, but as is the case with heifers with first calves, their milk records were not exceptionally good. Table 1 gives the milk and butterfat yields of six cows during the year.

TABLE 1.—*Comparison of milk and butterfat yields of six cows for the year ended June 30, 1927*

Cow	Length of time in milk	Total yield of milk	Total yield of butterfat
	Days	*Pounds*	*Pounds*
Alma (native) [1]	243	1,152	86.24
Blossom (native)	342	4,103	171.26
Berry (grade Holstein)	278	2,225	94.81
Mary (native)	365	2,498	118.73
Ellen (Guernsey)	322	2,691	115.93
Bess (Guernsey)	215	3,016	125.81

[1] Alma calved Feb. 7, 1925, and had, therefore, been milking for 17 months when the record was begun.

With the exception of the two Guernsey cows which received a light concentrate ration during a part of the year, the cows were maintained wholly on guinea-grass pasturage.

POULTRY

For the third consecutive year trap-nest records were kept of egg production in the station flock of native hens. The flock numbers 45 birds. The weight of individual hens and the weights and numbers of their eggs were noted to permit comparison of the value of the locally bred fowls with some of the improved breeds. The flock of Single Comb White Leghorns which was hatched last year from eggs purchased for the purpose now numbers nearly 150 birds. From the limited data at hand the Single Comb White Leghorns would seem to be somewhat larger than the average native hens and to lay more and larger eggs. It may yet be found, however, that the native hen is better able to resist the hardships incident to local conditions than is the Leghorn. Single Comb White Leghorn chickens have so far been raised successfully and without difficulty. Trap-nest records of 20 Single Comb White Leghorn pullets show that the highest yield per hen for the first six months of laying was 122 eggs in two instances. A number of the purebred cockerels and a few of the eggs for hatching purposes were sold.

SWEET-POTATO WORK

The number of sweet-potato seedlings planted in the breeding plats for observation and comparison was greatly reduced because of the

temporary lack of sufficient time to devote to the work. Only 50 seedling varieties were planted, each number as heretofore occupying a 50-foot row. The planting was replicated three times. Many of the seedling varieties promise to be of value, but the proportion of good seedlings to the total number tested is very small. La Verne, a seedling variety which was grown at the station for the first time in 1922 and tested in comparison with the Bigwig and Black Rock varieties for five years, made uniformly heavy yields. In quality the variety is only fair. Table 2 shows the annual yields of La Verne and some of the standard native varieties for the five-year period.

TABLE 2.—*Comparison of annual yields of the La Verne sweet potato and standard native varieties*

Season [1]	Yield of La Verne per plat	Yield of native varieties per plat	Increase in yield of La Verne over native varieties
	Pounds	*Pounds*	*Per cent*
1922–23	27.0	12.50	116.00
1923–24	76.5	72.00	6.25
1924–25	115.0	91.00	26.37
1925–26	115.1	96.60	19.15
1926–27	83.2	56.40	47.52
Total	416.80	328.50	26.88

[1] Yields for 1922–23 and 1923–24 represent single plantings; for 1924–25 the averages of three replications; for 1925–26 the averages of five replications; and for 1926–27 the averages of three plantings.

In 1922, 1923, and 1924 the La Verne variety was checked against the Bigwig, which is the pistillate parent of the former. The Black Rock, a variety which was introduced by the station from Barbados many years ago, has been used as the control since 1925 because it has been more widely planted than any of the other varieties on the island and is a somewhat heavier producer than the Bigwig. Since and including the season of 1923 the breeding work has been conducted on 50-foot rows, the plants being spaced 1 foot apart.

Controlled pollination experiments with the sweet potato, begun at the station in 1924, were temporarily suspended during the year.

REPORT OF THE HORTICULTURIST

By J. B. THOMPSON

The director, in addition to his regular duties, served as acting horticulturist during the absence of Mr. Perry, who was assigned to duty in charge of extension activities on the islands of St. Thomas and St. John.

EXPERIMENTS WITH TRUCK CROPS

Experimental plantings and trial shipments were again made of eggplants, peppers, and tomatoes. The seed of all the varieties was sown in the seed beds July 30, 1926.

The Black Beauty variety of eggplant was transplanted September 17 and 18 on a 0.244-acre plat, and the first fruits were harvested December 1, 1926. The area produced a total of 97½ standard crates of good marketable fruit and 16½ crates of fully developed fruit that had wilted and softened as the result of dry weather pre-

vailing at the time the crop was growing. The acre yield was at the rate of 400 crates of marketable and 66 crates of second-grade fruit. Two shipments were made to New York, the first December 9 and the last December 31. The first consignment of 26 crates brought from $2.75 to $5 per crate, with an average price of $3.60 per crate. The second consignment of 56 crates brought from $2.25 to $5 per crate, with an average of $3.76 per crate. The average selling price of the two consignments of 82 crates on the New York market was $3.71.

The Ruby King variety of pepper was transplanted September 17 and 18 on a 0.244-acre plat and the first fruits were picked November 6, 1926. The area yielded a total of 56⅓ crates of sound peppers and 3⅓ crates of culls, or at the rate of 230 crates of marketable peppers per acre. Of the marketable peppers, 34.6 crates were packed as grade 1 and 21.7 crates as grade 2. Two consignments were made to New York. The first of 19 crates went forward December 9 and brought $3 to $3.75 per crate, with an average price of $3.30 per crate. The second consignment of 13 crates went forward December 31 and brought from $2.50 to $3.50 per crate, with an average of $2.96. The two consignments brought an average price of $3.16 per crate.

An area of land aggregating 0.488 of an acre was set with tomato plants September 24 and 25. The Bonnie Best variety occupied 0.8 of the area and the Globe 0.2 of the area. Bonnie Best was a few days earlier than Globe, and the first ripe fruits were picked November 30, 1926. Bonnie Best outyielded Globe by 21 per cent, giving a total yield of 11,626 pounds, or at the rate of 23,803 pounds per acre. Based upon the net average weight of 34.45 pounds for the 41 crates shipped December 31, 1926, the yield of the whole area was equivalent to 337 crates of tomatoes. Crates were not available for packing the entire crop and only one shipment therefore was made. The tomatoes brought from $4 to $5 per crate on the New York market, with an average price of $4.56 per crate.

Table 3 shows the cost of growing and marketing the crop.

TABLE 3.—*Cost per crate of growing and marketing tomatoes in St. Croix in 1926*

Production:	
Preparing land for planting, at $9 per acre	$0.030
Seed and preparing seed bed, at $6 per acre	.020
Transplanting 5 by 5 feet, at $2.40 per acre	.008
Weeding (twice), at $10.80 per acre	.036
Cultivating (four times) at $3.60 per acre	.012
Picking	.040
Grading and packing, at $2 per day	.125
Total cost of production	.271
Marketing:	
Crates (6-basket) and wrappers	.400
Transporting from station to ship	.150
Freighting to New York	.750
Lighterage and wharfage	.080
Clearance and cartage charges in New York	.136
Commission (10 per cent of selling price)	.456
Total cost of marketing	1.972
Total cost of production and marketing per crate	2.243

Labor costs were figured from the data obtained in growing approximately half an acre of tomatoes during the year. Expenses per acre for field preparation, transplanting, and similar operations were converted to cost per crate on the basis of a yield of 300 crates of good marketable tomatoes per acre, which is considerably less than the yields at the station, but probably more nearly what might be expected under fairly average field conditions. Unskilled labor was figured at the usual wage of 40 cents per day.

The cost of growing eggplants and peppers is slightly higher than for tomatoes because a greater number of plants of the former are required per acre and the cost of transplanting increases accordingly. The cost of picking, grading, and packing eggplants and peppers is less than for tomatoes, however, and due to the lower average selling price a considerably smaller commission is paid per crate. Peppers do not yield as heavily as tomatoes. On the other hand, peppers are more resistant to drought than are eggplants, are easier to ship than tomatoes, and can therefore be grown at small risk.

Table 4 summarizes the cost of producing and marketing eggplants and peppers in St. Croix.

TABLE 4.—*Cost per crate of growing and marketing eggplants and peppers in St. Croix in 1926*

	Eggplants	Peppers
Cost of production per crate	[1] $0.186	[2] $0.248
Cost of marketing per crate	1.887	1.832
Total cost of production and marketing per crate	2.073	2.080

[1] 300 crates per acre. [2] 200 crates per acre.

CARROTS

Carrots can easily be grown in the fall. If they are left in the ground and harvested as they are needed the supply will last during the summer when other vegetables are scarce. The Chantenay variety was planted on an area of 900 square feet October 19, 1926, and the first roots were harvested January 28, 1927. The plat continued to furnish carrots until the final harvest June 22, 1927, and gave a total yield of 568 pounds, or at the rate of 25,770 pounds per acre.

LIMA BEANS

In former trials with pole Lima beans the small white Lima (Carolina Sieva type) surpassed the large-seeded varieties in yield. The Florida butter bean continues to be the outstanding variety in point of yield, and for the past two or three years all other varieties have been discarded. During the year seed of the Yopps Pole Lima variety was obtained and grown in a comparative test with the improved white Florida butter bean. Yopps Pole Lima produces a white bean of medium size and has given good results in the lower south and Gulf coast regions of the United States. In quality the bean is milder in flavor with a more pronounced taste than the Florida butter bean and other beans of this type. Plats measuring 1,080 square feet were planted with each of the varieties October 19, 1926. The yields were comparable, those for the Florida butter

bean aggregating 84 pounds of dry shell beans and 83.5 pounds of green pods, and those for Yopps Pole Lima amounting to 81.25 pounds of dry shell beans and 84.5 pounds of green pods. Converted to acre yields the Florida butter bean yielded at the rate of 3,388 pounds of dry shell beans and 3,368 pounds of green pods, and the Yopps Pole Lima at the rate of 3,277 pounds of dry shell beans and 3,408 pounds of green pods. Both varieties were still in bearing at the close of the year and their records of yields are still incomplete.

YAMS

On March 31, 1926, eight 250-foot rows were planted with the Seal Top variety of yam and on May 13 and 14 four of the rows were provided with tripod supports for the vines to climb upon. A section of the plat from which an unknown party removed a portion of the roots was eliminated from the test and the yields on both staked and unstaked ground were compared on 100-foot rows only. The outside rows were left to serve as borders. The three inner staked rows yielded 291 pounds of roots as compared with the three inner unstaked rows which produced only 164 pounds of roots.

PAPAYAS

Two plantings of papayas were grown for purposes of comparison during the year. The seed of one was introduced from the Hawaiian Islands and grown through two generations in St. Croix; and the seed of the other was introduced from the island of Guam. The Hawaiian strain produced fruits which were decidedly larger than those from the Guam strain, but in flavor the latter was superior to the former. Sixteen trees of the Hawaiian strain and 20 of the Guam strain fruited. Individual fruits of the Hawaiian strain averaged 43.9 ounces in weight, as compared with an average of 31.3 ounces in case of the Guam strain. The papaya does not remain long in bearing in St. Croix and the fruit gradually decreases in size as the tree advances in age. This tendency to degenerate has been observed in all experiments with the papaya in St. Croix.

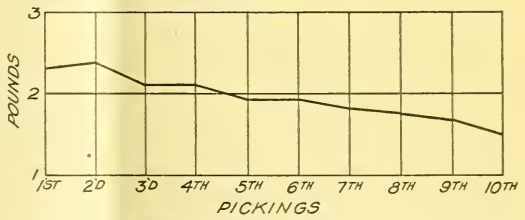

FIG. 1.—Showing the progressive reduction of the average weight of papayas of the Guam strain. Ten per cent of the fruit, 98 fruits in all, was gathered at each picking

Figure 1 shows the progressive reduction in weight of 980 fruits of the Guam strain (accession No. 1245) gathered at intervals from 20 trees during the period of bearing. Ten per cent of the crop, or 98 fruits, was gathered at each picking, and as nearly as it could be done the yield of each tree was also gathered in 10 equal parts.

BANANAS

Bananas should be grown more extensively in the Virgin Islands than they are now. With few exceptions the plantings in St. Croix are restricted to the relatively moist areas along the watercourses or

to the rough and stony areas of the north side where usually the rains are more abundant than elsewhere on the island. These areas do not readily lend themselves to the employment of modern methods of cultivation. Systematic tillage is not practiced and the available moisture is not economically utilized in consequence. As a result of growing the fruit to such a limited extent and of using primitive methods in cultivating, the supply of home-grown bananas is not sufficient to meet local demands and the fruit is imported in comparatively large quantities from the British island of Tortola, and from Porto Rico and elsewhere. In order to demonstrate the possibilities of producing the fruit in St. Croix in ample quantities to meet local market requirements, 99 plants were set on a selected low area of cane land in October, 1925, under the direction of the writer. The land was carefully prepared before planting and given occasional cultivations to suppress weed growth and to conserve soil moisture. The planting matured its first fruits in September, 1926, or about 10 months after being set, and yielded a total of 80 bunches before the close of the fiscal year. The period following planting was extremely dry, the total rainfall for the fiscal year in which the planting was made approximating 10 inches below normal. In consequence, the first bunches were small, and the 80 bunches bore an average of 7.58 hands having 107 bananas and had an average weight of only 28 pounds 4 ounces. With the return of favorable weather, however, the planting began to improve and at the close of the year ended June 30, 1927, was in good condition. Many plants bore large fruits weighing 40 to 60 pounds per bunch. The Chinese dwarf or Cavendish variety, which is the most prolific of the various varieties grown in the Virgin Islands, was used in the experiment.

Small avocado seedlings were set alternately between the banana plants in every second row. The banana plants were spaced 12 feet apart, intervals of 24 feet being left between avocado trees. The soil in the grove is admirably suited to the avocado and the protection afforded by the banana plants is beneficial to its early growth. The young trees are making fine growth. Although they are less than two years from the seed they are 6 to 8 feet high and vary from 1¼ to 1¾ inches in diameter at a foot above the ground.

INTRODUCTION OF ECONOMIC PLANTS

Interesting introductions obtained through the Office of Plant Introduction of the United States Department of Agriculture, and from other sources included the rose apple (*Eugenia jambos*), *Adenanthera microsperma*, *Albizzia adianthifolia*, which is closely related to the local Thibet tree; *Toluifera balsamum;* a seedling bougainvillea from Jamaica; *Colvillea racemosa*, which somewhat resembles the royal Poinciana or flamboyant tree; *Oncoba spinosa; Cordia gerascanthus* or capa prieto; *Ficus bussei; Attalea cohune* or Cohune palm; *Heterospathe elata; Caryota urens;* and *Dracaena marginata.* The Tyer palm (*Coccothrinax argentea*), also known as the silver palm, from which the native brooms are fashioned in large numbers, grows abundantly in St. Thomas, but only one or two specimens have been found growing in St. Croix. Palm seed varieties introduced and started for distribution included *C. argentea*, *Washingtonia robusta*, *Phoenix canariensis* and *P. leonensis.* A relatively large number of plants of *Casuarina stricta* and *Eucalyptus tereti-*

cornis have been grown from introduced seed and distributed to interested persons.

Some of the earlier introductions are showing such promise as to be deserving of a word of comment. A few teak trees (*Tectona grandis*) which were introduced for trial at the station about 1911 have grown slowly but steadily and seem to be well adapted to local conditions. One of the trees is over 30 feet high and has a diameter of 14 inches at a foot above the ground. The Governor plum (*Flacourtia ramontchi*) which was introduced for trial before the transfer of sovereignty in 1917 has been in bearing for several years. During the year one of these shrubs bore a heavy crop of fruit, from September 21 to November 23, 1926, inclusive, yielding a total of 4,161 fruits with an aggregate weight of 39 pounds 11 ounces. The fruit seems to be well liked by those who try it, but has been found to be too astringent for use in jelly making. A single tree of the Martinique cherry (*Malpighia punicifolia*) which was planted at the station early in 1921 is now 9 feet high and has a diameter of 4½ inches at the surface of the ground. The tree fruited twice during the year, bearing in late October, 1926, 110 small fruits of brilliant red color, and 173 more fruits in early May, 1927. The fruits are of attractive appearance and pleasing flavor. The 283 fruits had a total weight of only 1 pound 6 ounces.

SEED AND PLANT DISTRIBUTION

During the year 58,178 plants were grown in the station nurseries for distribution to the public. General distribution included 54,488 vegetable plants, 604 fruit plants, 52 palms, 608 ornamentals, 1,010 timber and other forest trees, and 1,416 other miscellaneous economic plants. Interest in the more general planting of economic plants and trees is rapidly growing, and many requests are constantly being received at the station for the various kinds of plants. Large quantities of vegetable plants are in demand by small growers, but fruit and timber trees, and ornamentals are more frequently sought by plantation owners.

REPORT OF THE AGRONOMIST

By M. S. Baker

SUGAR CANE

The total yield of sugar in St. Croix for the season 1926–27 will amount to approximately 7,000 short tons as compared with 5,000 short tons for the preceding year. The crop for the next season is expected to be still heavier because of the occurrence of heavy rains from March to the close of the fiscal year.

SUGAR-CANE VARIETIES

Sixty different varieties of sugar cane were obtained from various sources including St. Kitts, Porto Rico, and the Bureau of Plant Industry, United States Department of Agriculture, and grown in the test field. Original importations usually consist of a very few cuttings of each variety and some time is required to propagate sufficient material for planting the experimental plats. To prevent disease and insect-pest importations all cane introductions are grown for a few

months in quarantine in St. Thomas before shipping them to St. Croix. Growing introductions in quarantine retards the progress of experimental work, but is considered necessary. Several interesting new varieties which are now being grown in quarantine were received from Barbados, Java, Guadeloupe, Cuba, Trinidad, and Porto Rico.

Table 5 gives the results of tests of 37 varieties ranked in the order of their merit for yield of sucrose per acre in the plant-cane crop.

TABLE 5.—*Comparison of yields and sugar content of 37 varieties of cane grown at the Virgin Islands station in 1926–27*

Variety	Weight per acre of plant cane	Weight per acre of first ratoon	Sucrose content of juice of plant cane	Sucrose content of juice of first ratoon	Sucrose per acre from plant cane	Sucrose per acre from first ratoon
	Tons	*Tons*	*Per cent*	*Per cent*	*Pounds*	*Pounds*
SC 12/4	20.812	8.228	19.50	19.60	3,327.52	1,357.90
Uba 1241	23.200	----------	17.00	----------	2,920.66	----------
Kassoer	30.061	4.224	12.85	15.10	2,871.40	133.56
BK 6	15.156	4.796	18.20	15.60	2,482.65	613.50
Uba 796	18.605	18.392	17.35	17.00	2,388.77	1,938.52
Uba 797	21.162	13.552	16.50	15.30	2,304.62	1,119.67
SC 22/21	15.166	3.300	20.00	19.25	2,183.99	431.97
POJ 228	13.579	10.907	19.10	19.50	2,074.93	1,786.59
B 6388	16.312	1.848	17.65	19.10	2,073.05	272.66
D–116	13.932	7.436	17.90	16.90	2,044.96	1,005.35
Gibbons No. 2	14.225	1.908	15.50	17.65	1,962.94	279.58
POJ 213	14.196	9.170	18.50	18.00	1,943.52	991.35
BH (10) 12	11.022	13.552	21.10	20.85	1,907.07	2,373.50
B 376	13.403	13.684	18.70	18.25	1,901.10	1,907.97
POJ 826	11.419	12.990	18.75	19.25	1,884.14	2,350.78
POJ 2379	12.036	2.014	19.65	----------	1,797.50	----------
BK 12	12.394	1.721	16.75	16.20	1,702.44	200.90
D–109	16.048	4.400	19.25	18.90	1,633.24	615.38
BK 15	9.089	.803	20.30	17.75	1,622.47	111.17
POJ 797	12.433	14.960	16.50	17.00	1,600.14	2,187.15
B 3750	9.170	8.096	19.20	19.00	1,584.66	1,292.12
SC 13/13	13.138	5.852	16.75	18.35	1,540.32	687.26
Jamaica	10.964	----------	15.00	----------	1,513.04	----------
D–1135	9.256	----------	19.50	----------	1,480.15	----------
B 7924	11.815	7.700	16.40	19.70	1,472.73	1,274.20
Ribbon	8.994	7.876	19.00	19.20	1,435.47	1,149.25
A–2	9.346	6.820	19.60	17.60	1,429.95	1,008.27
POJ 234	10.889	10.700	18.05	19.00	1,375.95	1,707.54
Crystallina	8.817	8.932	18.25	18.90	1,319.58	1,282.99
Balk	7.847	2.750	20.00	20.35	1,299.60	458.89
SC 22/31	8.063	18.106	20.25	22.65	1,240.94	3,116.76
PR 729	8.200	----------	17.75	----------	1,222.70	----------
Ba 6032	9.523	12.012	15.60	18.20	1,158.78	1,836.39
White Tanna	8.376	.935	15.70	15.55	1,157.35	104.68
PR 701	11.374	----------	16.65	----------	1,060.60	----------
BK 33	9.875	5.852	18.75	19.00	1,055.30	800.55
B 147	6.613	12.435	17.70	19.70	972.27	2,140.65

SEEDLINGS

Sugar-cane seedling varieties SC 22/21 (fig. 2) and SC 22/31 again gave yields indicating their value for further planting. SC 22/21 yielded 19½ tons in an increase plat, and SC 22/31, 13 tons. Both seedlings are high in sucrose content.

Seedlings germinated from arrows in the season 1925–26 made excellent growth. Of the 2,000 original seedlings in the nursery, 184 showed good field characters and were selected for the test fields. Of this number, 179 were grown from SC 12/4 arrows and the rest were seedlings of the Ribbon variety. These selections are growing well.

Of 1,725 new seedlings (fig. 3) grown from arrows and transplanted to the nursery during the year, 1,081 were from SC 12/4 and 644 from BH (10) 12.

CULTURAL EXPERIMENTS

An experiment was begun in 1924 to learn the comparative value of preparing cane lands several months in advance of the planting season and of preparing the land immediately before planting, the usual method followed in local practice. The experiment was combined with one comparing the results of planting in furrows between banks and on level land. The plats were arranged to permit comparison of results on both fallowed and nonfallowed land. Fallowed land where the method of planting on a level surface was followed gave the best and most profitable yields of plant cane. The first ratoon crop showed no advantage in yield for the fallowed land, and the yields from the level and banked methods of planting were similar. The cost of cultivation was practically the same for all plats.

FIG. 2.—Portion of field of sugar-cane seedling variety SC 22/21, six months old

All the cane blades and trash remaining when the plant-cane crop was harvested were removed from two of the plats in the experiment, while the trash was raked into alternate middles and allowed to remain as a mulch on two similar plats. The areas from which all trash was removed were cultivated at intervals throughout the season. Only alternate or clean middles on the mulched plats were cultivated. The labor involved in removing the trash exceeded that required in raking the trash and mulching alternate middles, and the cost of cultivating the unmulched plats was double the cost of cultivating the mulched areas. The yield of cane on the mulched plats exceeded the yield on the unmulched plats by 5 tons per acre.

In an experiment begun in November, 1923, to determine the effect of paper mulch on soil moisture, the paper used proved to have no value as a mulch after the first year, and the lack of time precluded further plantings during the year.

Spacing tests were continued to learn the effect on yield of planting at different distances. The rows were spaced 3 to 5 feet apart. Each plat contained 6 rows. In 2 rows the cuttings were spaced 3 feet apart, in 2 more 2½ feet apart, and in the remaining 2 rows

only 2 feet apart. The Crystallina variety was used in the work and the cuttings were planted in furrows between banks. The plant-cane crop and the first ratoon crop have now been harvested from the planting. The highest yields for both crops were obtained from plats in which the plants were set 2 feet apart in rows 3 feet apart. In fact, in all the plats the rows in which the plants were set 2 feet apart made the highest yields, and the weights of cane decreased as the width of middles and the distance between plants were increased.

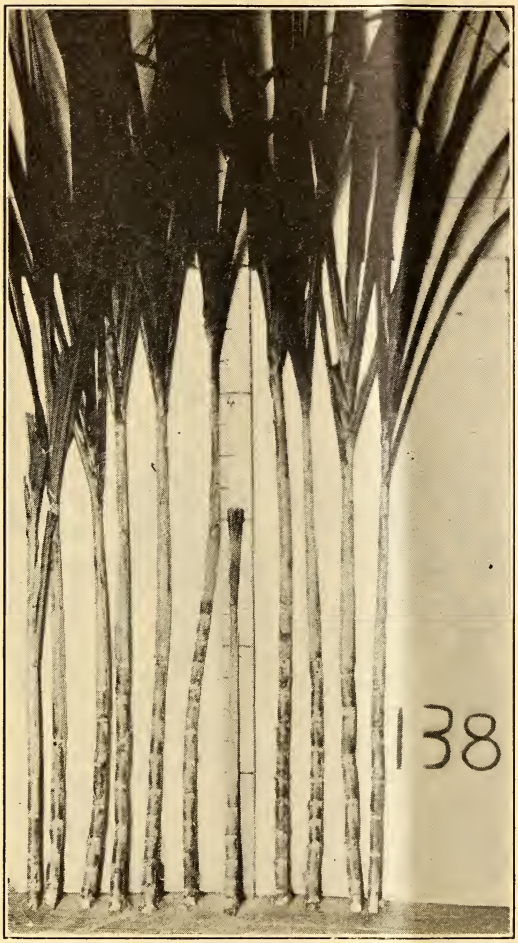

FIG. 3.—Canes from the original stool of a new sugar-cane seedling, SC 26/138

As the result of dry weather following the harvest of the preceding year, a large portion of the cane in the crop-rotation test was lost.

An experiment was begun to determine the effect on yield of cane of employing an artificial manure made by the use of a proprietary compound. In August, 1926, two heaps of dry cane trash each 10 by 10 by 6 feet were given large quantities of water and mixed with 300 pounds of the compound to hasten the rotting process. Each heap received 150 pounds of the compound in 6 equal parts. Trash was spread over an area of land 10 feet square and trod upon until it was only a foot deep. Water was then added to saturation, followed by 1 part of the compound, the operation being repeated five times until the mass was 6 feet high. By November, 1926, the mass had shrunk to a height of only 2½ feet. The two heaps were then turned and combined. The mass required six months to decompose and utilized 78 barrels of water in addition to that supplied by the rains. Approximately 5,400 pounds of well-decomposed manure was obtained and applied to a newly prepared cane field for comparison with farmyard manure. The experiment has not progressed sufficiently as yet to yield conclusions.

COTTON

Approximately 50 acres of land in St. Croix was devoted to cotton for commercial purposes during the season 1926–27, but the crop was a failure owing to the ravages of the pink bollworm. (Fig. 4.) Seed for the planting was introduced from Trinidad at a time when that island was thought to be free from the presence of the pest. Notwithstanding a short closed season and the use of clean seed, the pest appeared in destructive numbers. Infestation may have spread from wild or volunteer cotton which is to be found growing here and there over the island. Even with the adoption of a closed season all the landowners do not cooperate in the work of destroying volunteer cotton plants. Until such cooperation is forthcoming the cotton industry will be menaced by the pest.

Cotton culture formed a part of the work of the young gardeners of the various rural schools of the island, but all the plantings unfortunately were attacked by the pink bollworm, from 5 to 50 per cent of the bolls being infested.

FIG. 4.—Sea-island cotton three and one-half months after planting

Attention is called to the time of planting as a probable factor of importance in the work of controlling the pink bollworm in St. Croix. Cotton planted July 1 on 30 acres of land was a total failure. Cotton planted at the schools in late September matured successfully because infestation was light, but the plantings of late October were heavily infested with the pink bollworm and were a failure Apparently the plantings of September have a better chance to succeed than have those started before or after that time. Observations at the station seem to corroborate these results. The pink bollworm has been comparatively inactive during certain periods. Plantings on August 18, 1924, and August 18 and 26, 1926, were partly successful; those of September 9, 1925, and July 21, 1926, were a failure; while those of September 3 and 13, 1926, were successful, the plantings of the latter date especially maturing in fine condition. The plantings of September 9, 1925, occupied land that had been in cotton in 1924–25, fumigated seed from a heavily infested crop being used for the purpose.

Because of the enforcement of a law calling for a closed season, cotton will not be grown at the station during the ensuing year.

SPACING TEST

Another spacing test was conducted on three series of plats to determine the effect on yield of close and distant planting. A comparison was made of the results of planting in rows 3½ and 4 feet apart, the plants being spaced 8, 12, 15, 24, and 36 inches apart, respectively, in the row. All plantings were duplicated. The results again show a distinct advantage in yield in favor of close planting. The size of boll was found to decrease as the result of close planting, but length of fiber and percentage of lint were not affected. Table 6 gives the results of planting at different distances during the past three years.

TABLE 6.—*Acre-yields of sea-island cotton as affected by different planting distances*

Distance of rows apart	Distance of hills apart	Estimated acre-yields of seed cotton		
		1924–25	1925–26 [1]	1926–27
	Inches	*Pounds*	*Pounds*	*Pounds*
3½ feet	36	493.64	None.	1,210.82
Do	24	512.35	None.	1,293.13
Do	15	634.50	None.	1,370.38
Do	12	None.	None.	1,303.90
Do	8	846.65	None.	None.
Do	6	787.83	None.	1,216.64
4 feet	36	433.98	None.	1,152.52
Do	24	623.90	None.	1,283.41
Do	15	732.98	None.	1,398.99
Do	12	None.	None.	1,353.94
Do	8	707.89	None.	None.
Do	6	819.11	None.	1,337.94

[1] The 1925–26 crop was destroyed by the pink bollworm.

The planting of 1924–25 was made August 18, 1924; that of 1925–26 on September 9, 1925; and that of 1926–27 on September 13, 1926.

INSECT PESTS

The pink bollworm (*Pectinophora gossypiella*) and the cotton leaf worm (*Alabama argillacea*) are the most destructive insect pests of cotton in the Virgin Islands. The cotton leaf worm may be effectively controlled by means of lead arsenate (fig. 5) or Paris green. Before it is used, Paris green should be mixed with finely powdered lime in the proportion of 1 part to 8 parts of lime. Lead arsenate is not readily washed off the plants by the rains and therefore gives more lasting results than Paris green.

REPORT OF THE AGRICULTURIST FOR ST. THOMAS AND ST. JOHN

By W. M. PERRY

For several years the residents of the islands of St. Thomas and St. John have requested that a representative of the experiment station in St. Croix be located in St. Thomas to assist in effecting a permanent improvement in the agriculture of these islands. St. Thomas is only a few miles from St. John but more than 40 miles

from St. Croix. Because of the distance of the smaller islands from the experiment station the inhabitants have difficulty in keeping in close touch with the work under way in St. Croix. To meet the situation and to furnish an agricultural service and farm leadership to the people of the outlying islands, the writer was assigned to this work July 1, 1926, with headquarters in St. Thomas.

The surface of St. Thomas and St. John is for the most part hilly, the area under cultivation is small in consequence, and the methods of agriculture followed are primitive. When it has been fully demonstrated that crops can be profitably produced on the islands for export trade, the adoption of modern farm implements likely will follow. The sugar industry flourished many years ago, but was abandoned in favor of other interests. Cattle raising is now the principal industry but some vegetables are grown for home use and to supply the local market in St. Thomas. The necessity of entering locally grown products on the market in competition with vegetables from the neighbor-

FIG. 5.—Dusting cotton with lead arsenate

ing islands has tended to discourage resident planters from growing their crops on a larger scale. With the view of developing the vegetable industry on St. Thomas and St. John, experiments were made to determine what varieties are best adapted to local conditions. The work was conducted in cooperation with the boys' and girls' garden clubs, the adult agricultural clubs, and specially selected demonstrators. (Fig. 6.)

To learn whether locally grown vegetables in the fresh state could be profitably marketed on the mainland, a trial shipment of seven crates was made to New York during the year. Tomatoes brought such satisfactory prices as to induce planters to extend the area devoted to the crop. A campaign is under way for the production of Bermuda onions in St. John where the crop grows to perfection.

Agricultural clubs have been organized in the various communities to carry on experiments in growing vegetables and campaigns for marketing them. Monthly meetings are held by the clubs, and agricultural and other community problems are discussed. The agricul-

turist attends the meetings when time permits and gives such advice and information as may be needed. There are now six clubs with a total membership of 131 persons. Each club has two representatives

FIG. 6.—An agricultural rally in St. John

in the central organization or agricultural council. Associated with these representatives are well-known business men and the heads of various governmental departments which are directly interested in rural welfare. The council is working on many problems affecting the

FIG. 7.—A garden club in St. Thomas

rural welfare of the islands. Each school has its boys' and girls' garden club and 166 children have been enrolled. (Fig 7.) The young gardeners are given seed of the best varieties of vegetables for

planting in their home gardens. Reports on the work are made at monthly club meetings which are conducted with a ritual, and great enthusiam has been aroused. The children are thus taught and encouraged to take an interest in gardening and the gardens serve as object lessons for the parents.

To stimulate interest in growing truck crops for shipment to the markets of the mainland, the colonial council created a fund which will enable the planters to market such of their crops as are graded and packed under expert supervision. Marketing is a new industry in these islands and every effort is therefore being made to train the growers to export their produce properly. Many other problems dealing with road and livestock improvement, land leases and farm rental agreements, and the control of plant pests and diseases were given attention. The agriculturist attended numerous conferences in the interest of agriculture, held consultations at his office, and delivered 68 addresses on agricultural topics and farm organization, and prepared 59 articles for publication in the local press. He distributed 2,337 packets of seed to 431 interested persons.

METEOROLOGICAL OBSERVATIONS

By A. Bisserup

The rainfall for the year ended June 30, 1927, totaled 48.05 inches, which was approximately 2 inches above normal. No hurricanes passed over the islands during the year. Unusually heavy rains fell from March to May, 1927, inclusive, forcing both plant canes and ratoons into rapid growth and brightening the prospects for a good cane crop in 1928. Rainfall of 8.01 inches was recorded for May, 1927. This is double the average amount recorded for May from 1852 to the present time. The absolute maximum temperature of the year, 92° F., was recorded September 8, 9, and 13, 1926. The absolute minimum temperature, 61°, was recorded February 17, 1927. The lowest barometer reading, 29.62, equivalent to 29.82 at sea level, was observed at 8.30 a. m., September 15, 1926.

Table 7 gives a summary of the meteorological data for the year.

Table 7.—*Condensed meteorological data for Virgin Islands for the fiscal year ended June 30, 1927*

Month	Temperature		Total rainfall	Average daily velocity of wind	Monthly evaporation
	Maximum	Minimum			
1926	° F.	° F.	Inches	Miles	Inches
July	87.7	74.5	6.12	38.8	6.230
August	88.9	74.5	4.38	29.3	6.009
September	89.9	75.1	2.94	20.8	6.075
October	88.9	73.2	5.15	20.1	5.409
November	86.4	71.6	4.17	22.6	4.517
December	84.4	71.2	1.84	36.8	4.801
1927					
January	83.7	69.8	2.79	30.5	4.106
February	83.7	67.8	2.36	30.3	4.801
March	85.0	68.4	3.94	30.2	6.172
April	84.4	71.1	3.47	35.4	6.462
May	85.9	73.3	8.01	33.7	4.638
June	86.8	74.0	2.88	36.2	5.989
Total			48.05		65.058